

Physiotherapists' Experiences of four weeks of a Mindfulness Based Stress Reduction Program

Abstract

Objective: The study sought to gather the perceptions and experiences of a group of physiotherapists who took part in Mindfulness Based Stress Reduction program (MBSR).

Methods: Semi structured interviews were conducted with a group of eight physiotherapists who took part in a four week formal and self-directed mindfulness meditation program. The data collected were analysed by implementing a thematic analysis.

Results: Themes were identified in relation to perceived health benefits (stress reduction and increased attentiveness), the perceived impact of the MBSR on their professional practice and the perceived difficulties in practicing mindfulness.

Conclusion: The data from this study offers qualitative evidence that mindfulness practise can become an important element in a physiotherapists' stress reduction toolkit, by helping them deal with the challenges of their professional practise. The main difficulties encountered with the program were related to the feelings of sleepiness that MBSR induced in them in the beginning. The participants also reported that the long duration of the sessions was another obstacle, suggesting that a brief form of meditation would be preferable and more convenient.

Keywords: Mindfulness, Physiotherapists, Sport Physiotherapists, Meditation, Qualitative Exploration

Introduction

Physiotherapy provides an essential intervention that supports clients to recover from medical conditions and restore body system functions and improve their quality of life. However there is a plethora of studies which highlight that the nature of the physiotherapists' profession includes a high level of psychological and physical tension which might lead to increase levels of stress and burnout (Eivazi et al, 2013; Klappa et al, 2015; Pavlakis et al, 2010; Stamm et al, 2010).

According to Nathiya et al. (2017) a therapist's work environment entails the use of different physical movements, ranging from positions which require a somatic demands, such as standing, sitting, and walking to positions that require a higher level of energy such as pushing, lowering, stretching, bending, reaching, and lifting. This might lead to physiotherapists being at risk of both musculoskeletal injuries and also to high levels of stress symptoms. Broom and Williams (1996) in their qualitative study found that work related stress is a very common condition which physiotherapists suffer from and this affects both their professional performance and also their wellbeing.

Lindsay, Hanson, Taylor, and McBurnery (2008) stated that stress is one of the more frequent workplace symptoms affecting staff employed in the medical professions. Furthermore, in a study which used self-report questionnaires completed by 55 physiotherapists serving in three different hospitals, found that half of them were self-assessed as stressed and a small percentage as highly stressed. Harris, Cumming, and Campbell (2006) by means of an online survey with health-professionals (occupational physiotherapists, physiotherapists, psychologists, speech pathologists, and social workers) obtained evidence that workplace stressors could be dependant with the type of job and the years of experience. Moreover, they observed no significant differences between those who served at hospital and those who were community based. Indeed different studies, conducted in a variety of geographical locations, have reported that physiotherapists' work conditions can cause high levels of stress, anxiety, and musculoskeletal problems (Mohammed, Pappous, Muthumayandi, Sharma, 2018)

After stress, burnout is the second psychological constraint that has received more scholarly attention when it comes to the medical professions' work-related symptoms. Maslach, Jackson, and Leiter (2006) defined burnout as a psychological state characterised by a sense of an emotional fatigue, reduction in personal achievement and depersonalisation, which occurs in those whose jobs entail working with clinical populations. In a study authored by Schlenz, Guthrie, and Dudgeon (1995), it was reported that physiotherapists experienced a high level of burnout, particularly emotional exhaustion. Further, Śliwiński et al. (2014) specified that medical practitioners such as medical doctors and physiotherapists frequently experienced burnout symptoms and a link was made to the nature of their work, as they deal with people who suffer from illnesses and who frequently present high levels of anxiety because of their medical condition. Likewise, Pavlakis, Raftopoulos, and Theodorou (2010) emphasised that physiotherapists are at risk of burnout, similar to other medical practitioners, because of their close contact with patients and also their significant role in the recovery period. Nowadays substantial evidence has been gathered suggesting that mindfulness interventions can help overcome some of the above mentioned health problems and can positive impact in the workplace (Creswell, 2017; Mohammed et al. 2018).

Mindfulness and Integration of Therapy

Kabat-Zinn developed a Mindfulness Based Stress Reduction program (MBSR) in 1979 at the University of Massachusetts Medical Centre in Worcester, USA, to assist patients with chronic disorders, when it seemed that traditional treatments were not noticeably effective for them. Kabat-Zinn defined mindfulness as 'the awareness that emerges through paying attention in a particular way on purpose, in the present and non-judgmentally' (2009:4). Brown and Ryan (2003) stated that mindfulness is a status which involves paying attention to what is happening in the current moment. Nowadays mindfulness programs are being developed for a wide spectrum of use, such as in cancer treatment, childbirth, eating disorders, parenting and other interventions (Ergas, 2014). Mindfulness in its formal practice entails "taking time out each day to intentionally sit, stand, or lie down and focus on the breath, bodily sensations, sounds, other sense, or thoughts and emotions" (Stahl and Goldstein, 2010, p.17). While informal mindfulness entails bringing awareness to whatever activities or tasks happen in everyday life, such as drinking, walking, exercising, doing household tasks or socialising.

Mindfulness has an instrumental role to play in reducing negative thoughts and it is becoming an increasingly popular stress-coping strategy worldwide. Emotions, feelings, desires, worries, sickness, difficulties faced in the past or future concerns create anxiety and cause stress

(Fulwiler and Torrijos (2011). Mindfulness' key component of paying attention to the present moment has been associated to increases in stress resilience and effective coping (Creswell, 2017). A review of empirical studies by Keng, Smoski, and Robins (2011) revealed that research has shown that there is a significant correlation between mindfulness and positive psychological health indicators such as, life satisfaction, adaptive emotion regulation, less negative thoughts, psychopathological symptoms and positive influences in oneself.

The present study forms part of a larger research project which investigates the potential benefits of mindfulness for physiotherapists. A previously published study conducted by the same authors (Ref. deleted to preserve anonymity) approached the object of study using quantitative methods (i.e., questionnaires) and gathered evidence that mindfulness meditation increased therapists' body-awareness and reduced their perception of burnout at their workplace. However, as observed by Lemon (2017) quantitative methodological approaches have dominated the plethora of the mindfulness research. The present study aims to contribute and enrich the existing literature by implementing a qualitative approach. Thus, this continuation study, through the qualitative methods employed sheds further light on the experiences, perceived benefits and challenges encountered by a group of physiotherapists who took part in a 4 weeks MSBR programme (Ref. deleted to preserve anonymity)

Methods

Participants

Invitations to participate in the study were sent by email to all eight physiotherapists who had participated in a 4 weeks MBSR program (Ref. deleted to preserve anonymity) and who had given their consent to be approached for a follow up study at the end of the program.

From the eight of them who accepted to participate in the study, four of them identified themselves as female and four of them as male, their age ranged between 26 and 48 years old. All of them were physiotherapists specialising in sport injuries.

Procedure

The participants received and signed participant information sheets which included all information about the aims and procedure of the study. They also signed an informed consent form confirming their agreement to take part in 30 -45 minutes interview.

MBSR program

Each participant had one formal MBSR session per week which lasted for 60–90 min. The program was delivered by the primary researcher. The formal session protocol consisted of 10–15 min mindful discussion about mindfulness meditation practice, followed by 35 minutes of formal meditation practice. The formal session included these meditation skills: sitting or lay down meditation, mindful breathing and body-scan meditation. The last part of each formal session consisted of 10–15 minutes of mindful check-in and discussion about any challenges with mindfulness meditation practice. In addition participants performed an extra 20 min of self-directed practise at home. The self-directed mindfulness consisted of 20 min of daily mindfulness meditation by listening an MBSR CD which gave instruction about these skills (sitting/laying down meditation, mindful breathing, body-scan meditation, mindful walking meditation, mindful eating, meditation for anxiety and stress, mindful lying yoga, mindful standing yoga and loving kindness meditation). (Ref. deleted to preserve anonymity)

Data Analysis

In order to discover and explore the perceptions of our participants and in order to acknowledge the complexity of their interpretations, a thematic analysis (Braun and Clarke, 2008) was applied in this study following an inductive approach without any pre-establishment of any previous assumptions or hypothesis on the belief of the researcher (Gale et al, 2013). All interview transcripts were analysed using in NVivo coding. The interviewee quotations were highlighted and descriptively coded for a generation of broad themes. The preliminary codes were then categorised into key topic areas and analysed at a later stage in depth. The coding and categorisation of the data were complemented by analytic memo writing, which is a more detailed definition of the initial code and helped record emergent thoughts and themes about the data (Saldaña, 2015).

The further elaborated analytic memos were then analysed and contrasted with the generated themes to further scrutinise the data. The initial findings produced by the primary researcher were then passed to the second researchers in this study for a second level of analysis, who verified them and checked for coherence and for identifiable distinctions between the different

themes. Any disagreements between the initial codes were discussed until a consensus was obtained and this facilitated further development of the data analysis (Saldaña, 2015).

Results

The interview data collected in this study, after being analysed thematically, were grouped into four main themes: 1) Stress reduction, 2). Increased attentiveness, 3) MBSR's effects on physiotherapists' professional practise, 4) Challenged in practising mindfulness.

The first two of them, as their name suggests, discussed the different benefits as mentioned by our physiotherapists. The third one focused on how MBSR could help physiotherapists cope better with the characteristics and particularities of their job, while in the fourth one, our participants highlighted some difficulties that they faced and they offered some suggestions for improvement.

Stress Reduction

When asked about the perceived benefits that MBSR had brought to them, most of the physiotherapists that had taken part in the study indicated that MBSR helped them cope better with stress. One of our participants' words were very illustrative of this theme:

‘I felt that my stress levels were reduced because I have a lot of stress in my life and I have not practised anything like that before, so it was an opportunity to try it and I liked it. I think it was a good experience. Basically after that when I get stressed or I feel annoyed, I try to calm down and breathe... to think for a little bit and that makes me relax and look at the situation from different angles’ (Participant 2).

Another participant echoed the relaxing effect that MBSR had on them:

‘I found mindfulness really useful just to take some time during the day to be relaxed and focus on my thoughts, and sort of refresh’ (Participant 3).

Indeed, relaxedness and calmness were the most frequently reported effects that physiotherapists mentioned as a benefit from their enrolment in MBSR:

‘I think you can look at everything from a different side and also mindfulness helps to cope with stress or any situation that makes you very angry or upset’ (Participant 2).

Increased Attentiveness

Another frequent benefit that the physiotherapists in our sample mentioned, was an improvement in focus and concentration.

‘At the end of the program I felt that I could concentrate longer than before, especially; in my daily task ...In the past I could not concentrate on any particular task for a long time, for example when I read a book or paper I was not able to focus for more than 20 minutes. After I participated in this study, it helped me to concentrate for about one hour, it was amazing because it really helped me to focus on my work so that’s why I appreciate meditation’
(Participant 2).

This increased attentiveness and awareness can be particularly beneficial for physiotherapists whose everyday work entails a detailed fine observation of patients in order to accurately identify and assess injuries. For this reason, Participant 6 stated that the use of MM for other physiotherapists could be recommended:

‘If physiotherapists are able to take the time to improve their body awareness or general awareness, they will be able to make decisions more effectively. In that time when you are able to think clearly you can make better decisions’
(Participant 6).

Participant 4 also stated that MBSR would help physiotherapists in terms of decision-making with clients:

‘...the more grounded I am and the more aware of everything, the more clear I am in terms of my decision-making process. The increased focus and concentration that mindfulness brings is important for us as physiotherapists as it can help us have a clearer mind and take better decisions for the treatment of our patients’
(Participant 4).

MBSR’s Effects on Physiotherapists’ Professional Practise

As mentioned in the introduction section of this study, many studies have highlighted the constraints and demands in the everyday professional practise of physiotherapists. It is worth mentioning that the physiotherapists in our study were able to identify some particular benefits that MBSR had for them in relation to specific characteristics of their job.

‘When you are doing a lot of massage like I do, and you might have pro posture and not realise it, so you know how to sense the different areas of pain points of

the body. Besides, you know where the aching is coming from and you just take some time out to relax, so it reduces the physical fatigue as well as the sort of emotional and stress of the day if you have difficult clients. Also, you are more used to focusing on different points of your body and you get better at pin pointing where it is' (Participant 3).

Another positive effect that was associated with the particular characteristics of physiotherapists' work was an increased feeling of being in control and of having more patience.

Participant 7 stated that after MBSR, he felt kinder towards clients and then had more of a feeling of calmness.

'Mindfulness makes me kind and more concentrated. As physical physiotherapists are working very hard and long hours in the clinics; sometimes we became frustrated and you are less patient. But after the program, I was more patient and kind and if you have patience, you can think more clearly. This has helped me to understand and handle my clients better' (Participant 7).

Participant number 2 provided some more in depth feedback about the improvement in terms of feelings of control and patience, as she described how MBSR has helped her to handle better the stress that entailed working with hyperactive children.

'When I participated in this program I was working with kids between 5 to 10 years who have some hyperactivity issues. We had several sessions a week with them. Notably, it is very difficult to work with hyperactive kids, because you can easily lose your temper but after MBSR I could cope with them better. It was easier for me to handle all the situations regarding their hyperactivity. I felt more confident and more concentrated' (Participant 2).

Challenges in practising MBSR

Sleepiness

In this section we have thematically grouped the responses that we received from our participants when we asked them to comment on any difficulties that they faced during the MBSR. The most common difficulty that emerged was a feeling of sleepiness. Indeed, both mindfulness practise and sleep involve a pause from physical and mental activity and the transition from one state to another can be difficult to avoid, especially for beginners:

'To begin with it was difficult for me to learn the technique. I could not familiarise myself with being able to switch everything off and focus without becoming tired, it was a battle between being tired and sort of fully asleep, but then I began to realise how to learn how to use the technique properly' (Participant 4).

From the transcribed comments below it becomes apparent that sleepiness is very present in the initial stage of beginning to learn how to perform MM. However, once a participant perseveres as they progress into the MM practise, it seems that sleepiness goes away and is replaced with awareness and relaxation.

'My initial reaction when I began the program was that I felt sleepy very quickly, but after several sessions of mindfulness practise I felt a lot more focused and relaxed and I became more efficient and I did not feel distracted' (Participant 3).

Another participant emphasised the difficulties that a beginner has to face when starting to practise MBSR and the feelings of awkwardness that this initiation phase entails:

'Sessions were a bit strange to start with, I had never done any form of meditation before and it was quite strange to get into that 'zone' ' (Participant 3).

Participant 4 echoed a shared similar perception about the difficulties in the beginning but also stated that after getting accustomed to MBSR, they felt eager and motivated to continue the program:

'...actually focusing and meditating took a few sessions to get used to it. But when I got used to it during the sessions I actually looked forward to coming to the sessions, (Participant B4).

Duration of the program

Another difficulty that was stated by our participants had to do with the duration of the MBSR. One of our participants argued that long meditation practise might be not convenient for physiotherapists and suggested that a shorter meditation program would be more appropriate.

'The longer meditation might not be so good if you are a therapist in the clinic and you have got back to back appointments. You just have not got the time. But a short meditation practise can fit well in between clients or in the lunch break. You can use it by focusing on your breathing, body scanning and staying mindful, I think it would be very useful' (Participant 3).

This issue with the duration of the programme emerged again when we asked the physiotherapists who were involved in this study to report to us any suggestions about how to improve MM practice:

‘I think it would be better to start MBSR with 15 minutes' meditation rather than one hour or more especially for beginners, because it is difficult to start with for a long time. When I did meditation for the first time, I moved my body the whole time, I was not sure if I could meditate during that time or not, therefore I think a short time could be more helpful’ (Participant 1).

‘I think the main issue was the program starting with one hour, and for the beginners one hour is a very long time to meditate and to focus. I think it should start with 20 minutes and then increase it, because at first it is difficult to stay focused for a long time, especially if you have just started practising meditation. But the self-practise was very good and helped me’ (Participant 2).

‘I think if there are more formal sessions with less time it might be suitable for more physiotherapists to practise MM’ (Participant 4).

Discussion and Implications

It can be concluded that, MBSR had positive outcomes on physiotherapists' mental health and i professional practise. Based upon the feedback that emerged from our sample of physiotherapists MBSR can be a valuable technique to be applied regularly by physiotherapists. Our data suggest that MBSR generated reduced feelings of stress and anxiety and increased attention and concentration spans. Furthermore, our participants reported that formal and self-directed meditation practice helped them cope better with the particular challenges and demands of their work. These reported experiences are in line with findings from other studies, which report that MBSR had a positive impact upon reducing stress, anxiety and rumination and by improving self-compassion and positive affect (Shapiro, Brown, and Biegel, 2007). The qualitative data of our study concur with the results of an older study carried out by Shapiro, Schwartz, and Bonner (1998), with premedical and medical students that indicated that MBSR had a positive influence in the reduction of anxiety, stress and depression.

As a result of increasing their feelings of body awareness, the physiotherapists stressed that this helped them to make effective and accurate decisions in their daily tasks of diagnosis and

assessments. Recent studies (Kral et al., 2019) report that mindfulness training can produce changes in brain networks important for executive control and modulation of mind-wandering. Nevertheless, the mechanism on how mindfulness meditation affects the brain still needs to be further explored in research studies in the years to come.

In regards to the clinical and professional practise, the physiotherapists reported that their participation in the program helped them cope with some particular aspects of their everyday work activities. The participants of our study, reported benefits in terms of increasing patience and compassion with their clients. After participating in the MBSR, they felt better equipped to handle stressful situations and gain more calmness. Another point made by physiotherapists, was that gaining awareness would support them in making the right decision for their patients and also reduce the physical fatigue that results after long hours of practising massage sessions. Our qualitative data supports previous research indicating that MBSR can have significant impact in improving performance in the work environment when dealing with different types of clinical population (Bazarko et al, 2013; Cohen-Katz et al, 2005; Hülshager et al, 2013; Klatt et al, 2009; Mrazek et al, 2013).

Our participants also highlighted some challenges that had with the MBSR program and suggested some areas of improvement for future research projects or clinical practise. They reported that the long duration of the sessions was a challenge and that this produced feelings of sleepiness during the practise of MM. Indeed, it can be challenging to keep focused and stay constant for long periods of time and it is something that has been reported elsewhere in the literature (Zeidan et al, 2010 and Zeidan et al, 2010). The issue of the ideal duration of the MBSR is controversial, and yet inconclusive. There are studies which implement brief meditation forms of practise (Lane et al, 2007; Reich et al, 2017; Zeidan et al, 2010; Zeidan et al., 2010) while there are other studies which follow a more lengthy protocol of mindfulness (Cherkin et al, 2017; Chen et al, 2017; Kabat-Zinn, 2013; Short et al, 2017). However our data point out that a brief form of meditation would be more suitable and preferable for physiotherapists as they could combine it easier with the demands of their everyday professional practise.

Acknowledgments

The authors would like to thank all (physiotherapists) who involved in this study as well as in the study which they were practise MBSR program (deleted to preserve anonymity). In addition, special thanks to Ministry of Higher Education and Scientific Research, Kurdistan

Regional Government, Iraq. Our gratitude is also extended to School of Sport and Exercise Sciences, (deleted to preserve anonymity) for supporting this study.

Funding

The authors would like to thank the Human Capacity Development Program (HCDP), Ministry of Higher Education and Scientific Research, (deleted to preserve anonymity) for funding this study. Special thanks to School of Sport and Exercise Sciences, (deleted to preserve anonymity), for internal supporting this study.

References:

- Bazarko, D., Cate, R. A., Azocar, F., & Kreitzer, M. J. 2013. The impact of an innovative mindfulness-based stress reduction program on the health and wellbeing of nurses employed in a corporate setting. *Journal of Workplace Behavioral Health*, 28(2), 107-133.
- Beach, M. C., Roter, D., Korthuis, P. T., Epstein, R. M., Sharp, V., Ratanawongsa, N., et al. 2013. A multicenter study of physician mindfulness and health care quality. *Annals of Family Medicine*, 11(5), 421-428.
- Braun, V., & Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Broom, J. P., & Williams, J. 1996. Occupational stress and neurological rehabilitation physiotherapists. *Physiotherapy*, 82(11), 606-614.
- Brown, K. W., & Ryan, R. M. 2003. The benefits of being present: Mindfulness and its role in psychological wellbeing. *Journal of Personality and Social Psychology*, 84(4), 822.
- Brown, K. W., Ryan, R. M., & Creswell, J. D. 2007. Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, 18(4), 211-237.
- Campbell, T. S., Labelle, L. E., Bacon, S. L., Faris, P., & Carlson, L. E. 2012. Impact of mindfulness-based stress reduction (MBSR) on attention, rumination and resting blood pressure in women with cancer: A waitlist-controlled study. *Journal of Behavioral Medicine*, 35(3), 262-271.
- Chen, Y., Yang, H., Liu, L., & Fang, R. (2017). Effects of mindfulness-based stress reduction on the anxiety, depression and quality of life of patients with intrauterine adhesion: A

randomized controlled trial. *International Journal of Clinical and Experimental Medicine*, 10(2), 2296-2305.

Cherkin, D. C., Anderson, M. L., Sherman, K. J., Balderson, B. H., Cook, A. J., Hansen, K. E., et al. 2017. Two-year follow-up of a randomized clinical trial of mindfulness-based stress reduction vs cognitive behavioral therapy or usual care for chronic low back pain. *Jama*, 317(6), 642-644.

Cohen-Katz, J., Wiley, S. D., Capuano, T., Baker, D. M., Kimmel, S., & Shapiro, S. 2005. The effects of mindfulness-based stress reduction on nurse stress and burnout, part II: A quantitative and qualitative study. *Holistic Nursing Practice*, 19(1), 26-35.

Creswell, J. D. (2017). Mindfulness interventions. *Annual review of psychology*, 68, 491-516.

Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S. F., et al. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine*, 65(4), 564-570.

Dobkin, P. L., & Hased, C. S. (2016). Steps for starting and sustaining programs. *Mindful medical practitioners* (pp. 65-74) Springer.

Eivazi Gh M, Alilou A, Fereidounnia S, et al. Factors associated with burnout syndrome in physiotherapy staff: a questionnaire study. *Healthmed*. 2013;17:304–312.

Ergas, O. (2014). Mindfulness in education at the intersection of science, religion, and healing. *Critical Studies in Education*, 55(1), 58-72.

Fischer, M., Mitsche, M., Endler, P., Mesenholl-Strehler, E., Lothaller, H., & Jorgensen R. 2013. Burnout in physiotherapists: Use of clinical supervision and desire for emotional closeness or distance to clients. *International Journal of Therapy & Rehabilitation*, 20(11)

Fulwiler, C. E., & de Torrijos, F. 2011. Mindfulness and health. *Psychiatry Information in Brief*, 8(2), 1.

Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. 2013. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC medical research methodology*, 13(1), 117.

Gethin, R. 2011. On some definitions of mindfulness. *Contemporary Buddhism*, 12(01), 263-279.

Goldstein, J. 2017. *The experience of insight: A simple and direct guide to buddhist meditation* Shambhala Publications.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse education today*, 24(2), 105-112.

Gupta, S., Paterson, M. L., Lysaght, R. M., & Von Zweck, C. M. 2012. Experiences of burnout and coping strategies utilized by occupational physiotherapists. *Canadian Journal of Occupational Therapy*, 79(2), 86-95.

Harris, L. M., Cumming, S. R., & Campbell, A. J. 2006. Stress and psychological wellbeing among allied health professionals. *Journal of Allied Health*, 35(4), 198-207.

Higgs, Kathryn Refshauge, Elizabeth Ellis, Joy. 2001. Portrait of the physiotherapy profession. *Journal of Interprofessional Care*, 15(1), 79-89.

Hülshager, U. R., Alberts, H. J., Feinholdt, A., & Lang, J. W. 2013. Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, 98(2), 310.

Kabat-Zinn, J. 2005. *Coming to our senses: Healing ourselves and the world through mindfulness* Hachette UK.

Kabat-Zinn, J. 2009. *Wherever you go, there you are: Mindfulness meditation in everyday life* Hachette UK.

Kabat-Zinn, J. 2013. *Full catastrophe living, revised edition: How to cope with stress, pain and illness using mindfulness meditation* Hachette UK.

Kemper, K. J., & Khirallah, M. 2015. Acute effects of online mind–body skills training on resilience, mindfulness, and empathy. *Journal of Evidence-Based Complementary & Alternative Medicine*, 20(4), 247-253.

Keng, S., Smoski, M. J., & Robins, C. J. 2011. Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review*, 31(6), 1041-1056.

Klappa, S. G., Fulton, L. E., Cerier, L., Peña, A., Sibenaller, A., & Klappa, S. P. 2015. Compassion fatigue among physiotherapist and physical physiotherapists around the world. *Health Education*, 3(5), 124-137.

Klatt, M. D., Buckworth, J., & Malarkey, W. B. 2009. Effects of low-dose mindfulness-based stress reduction (MBSR-ld) on working adults. *Health Education & Behavior*, 36(3), 601-614.

Kral, T. R., Imhoff-Smith, T., Dean III, D. C., Grupe, D., Adluru, N., Patsenko, E., & Davidson, R. J. (2019). Mindfulness-Based Stress Reduction-related changes in posterior cingulate resting brain connectivity. *Social cognitive and affective neuroscience*, 14(7), 777-787.

Krusche, A., Cyhlarova, E., King, S., & Williams, J. M. 2012. Mindfulness online: A preliminary evaluation of the feasibility of a web-based mindfulness course and the impact on stress. *BMJ Open*, 2(3), 10.1136/bmjopen-2011-000803. Print 2012.

Krzeczkowski, J. E., Robb, S. A., & Good, D. E. 2017. Trait mindfulness is associated with lower post-injury psychological symptoms following a mild head injury. *Mindfulness*, , 1-9.

Lane, J. D., Seskevich, J. E., & Pieper, C. F. 2007. Brief meditation training can improve perceived stress and negative mood. *Alternative Therapies in Health and Medicine*, 13(1), 38.

Lemon, L. (2017). Applying a mindfulness practice to qualitative data collection. *The Qualitative Report*, 22(12), 3305-3313.

Levoy, E., Lazaridou, A., Brewer, J., & Fulwiler, C. 2017. An exploratory study of mindfulness based stress reduction for emotional eating. *Appetite*, 109, 124-130.

Lindsay, R., Hanson, L., Taylor, M., & McBurney, H. 2008. Workplace stressors experienced by physiotherapists working in regional public hospitals. *Australian Journal of Rural Health*, 16(4), 194-200.

Mackenzie, C. S., Poulin, P. A., & Seidman-Carlson, R. 2006. A brief mindfulness-based stress reduction intervention for nurses and nurse aides. *Applied Nursing Research*, 19(2), 105-109.

Maslach, C., Jackson, S. E., & Leiter, M. P. 2006. Maslach burnout inventory CPP.

Mohammed, W. A., Pappous, A. S., Muthumayandi, K., Sharma, D., 2018. The effect of mindfulness meditation on physiotherapists' body-awareness and burnout in different forms of practice. *European Journal of Physiotherapy*,

Mrazek, M. D., Franklin, M. S., Phillips, D. T., Baird, B., & Schooler, J. W. 2013. Mindfulness training improves working memory capacity and GRE performance while reducing mind wandering. *Psychological Science*, 24(5), 776-781.

Murray, G., Leitan, N. D., Berk, M., Thomas, N., Michalak, E., Berk, L., et al. 2015. Online mindfulness-based intervention for late-stage bipolar disorder: Pilot evidence for feasibility and effectiveness. *Journal of Affective Disorders*, 178, 46-51.

Nathiya, N., Sasikumar, K., Jagannath, M., Thangaraj, M., & Adalarasu, K. 2017. An observational study on occupational stress among physiotherapists. *Biomedical and Pharmacology Journal*, 10(2), 889-894.

Pavlakakis, A., Raftopoulos, V., & Theodorou, M. 2010. Burnout syndrome in cypriot physiotherapists: A national survey. *BMC Health Services Research*, 10(1), 63.

Piko, B. F. 2006. Burnout, role conflict, job satisfaction and psychosocial health among hungarian health care staff: A questionnaire survey. *International Journal of Nursing Studies*, 43(3), 311-318.

- Pollard, A., Burchell, J., Castle, D., Neilson, K., Ftanou, M., Corry, J., et al. 2017. Individualised mindfulness-based stress reduction for head and neck cancer patients undergoing radiotherapy of curative intent: A descriptive pilot study. *European Journal of Cancer Care*, 26(2)
- Poon, S. K. 2016. Pacifica: Stressed or worried? an app to help yourself (mobile app user guide). *Br J Sports Med*, 50(3), 191-192.
- Reich, R. R., Lengacher, C. A., Alinat, C. B., Kip, K. E., Paterson, C., Ramesar, S., et al. 2017. Mindfulness-based stress reduction in post-treatment breast cancer patients: Immediate and sustained effects across multiple symptom clusters. *Journal of Pain and Symptom Management*, 53(1), 85-95.
- Saldaña, J. 2015. *The coding manual for qualitative researchers* Sage.
- Santos, M. C., Barros, L., & Carolino, E. 2010. Occupational stress and coping resources in physiotherapists: a survey of physiotherapists in three general hospitals. *Physiotherapy*, 96(4), 303-310.
- Schlenz, K. C., Guthrie, M. R., & Dudgeon, B. 1995. Burnout in occupational physiotherapists and physical physiotherapists working in head injury rehabilitation. *American Journal of Occupational Therapy*, 49(10), 986-993.
- Segal, Z. V., Teasdale, J. D., Williams, J. M., & Gemar, M. C. 2002. The mindfulness-based cognitive therapy adherence scale: Inter-rater reliability, adherence to protocol and treatment distinctiveness. *Clinical Psychology & Psychotherapy*, 9(2), 131-138.
- Shapiro, S. L., & Carlson, L. E. 2009. *The art and science of mindfulness: Integrating mindfulness into psychology and the helping professions*. American Psychological Association.
- Shapiro, S. L., Brown, K. W., & Biegel, G. M. 2007. Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of physiotherapists in training. *Training and Education in Professional Psychology*, 1(2), 105.
- Shapiro, S. L., Schwartz, G. E., & Bonner, G. 1998. Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine*, 21(6), 581-599.
- Short, V. L., Gannon, M., Weingarten, W., Kaltenbach, K., LaNoue, M., & Abatemarco, D. J. 2017. Reducing stress among mothers in drug treatment: A description of a mindfulness based parenting intervention. *Maternal and Child Health Journal*, 21(6), 1377-1386.

- Śliwiński, Z., Starczyńska, M., Kotela, I., Kowalski, T., Kryś-Noszczyk, K., Lietz-Kijak, D., et al. 2014. Life satisfaction and risk of burnout among men and women working as physiotherapists. *International Journal of Occupational Medicine and Environmental Health*, 27(3), 400-412.
- Stahl, B., & Goldstein, E. 2010. *A mindfulness-based stress reduction workbook* New Harbinger Publications.
- Stamm, B. 2010. *The concise manual for the professional quality of life scale*.
- Tang, Y., Tang, Y., Tang, R., & Lewis-Peacock, J. A. 2017. Brief mental training reorganizes large-scale brain networks. *Frontiers in Systems Neuroscience*, 11
- Zeidan, F., Gordon, N. S., Merchant, J., & Goolkasian, P. 2010. The effects of brief mindfulness meditation training on experimentally induced pain. *The Journal of Pain*, 11(3), 199-209.
- Zeidan, F., Johnson, S. K., Diamond, B. J., David, Z., & Goolkasian, P. 2010. Mindfulness meditation improves cognition: Evidence of brief mental training. *Consciousness and Cognition*, 19(2), 597-605.
- Zernicke, K. A., Campbell, T. S., Specia, M., Ruff, K. M., Flowers, S., Tamagawa, R., et al. 2016. The eCALM trial: ETherapy for cancer applying mindfulness. exploratory analyses of the associations between online mindfulness-based cancer recovery participation and changes in mood, stress symptoms, mindfulness, posttraumatic growth, and spirituality. *Mindfulness*, 7(5), 1071-1081.

Appendix 1. Semi-Structured Interview Questions

1. How do you feel after four weeks of participation in the Mindfulness Meditation Program?
Can you tell me more about that?
2. Did you perceive that the Mindfulness Based Stress Reduction program had any impact on your health?
Can you tell me more about that?
3. Do you think that the Mindfulness Practice has helped you at all in your everyday professional practice?
Can you tell me more about that?
4. Do you think that a Mindfulness Based Stress Reduction program can be of any use to help physiotherapists cope with work-related stress?
Can you tell me more about that?
5. Did you encounter any difficulties with the structure of the content of the mindfulness program?
6. How do you think that the Mindfulness Based Stress Reduction can be improved?
7. Is there anything else you would like to say your participation in the Mindfulness Based Stress Reduction program?